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STUDIES ON SOME BORMANS' MATERIAL OF
DERMAPTERA (INSECTA)

The present paper provides details of studies made on some material of Dermaptera determined by BORMANS as: *Anisolabis colossea* (Dohrn); *Anisolabis maritima* (Bonelli); *Labia nigrella* and *Forficula pulchripes* represented by Types and *Opisthocosmia armata* De Haan.

The two males referred to *Anisolabis colossea* represent an undescribed species. A new subfamily and a new genus are erected for its reception with *Titanolabis* Burr, as the type genus. It is proposed here to sink genus *Homoeolabis* Borelli (1911) under *Titanolabis* Burr (1910). Out of the three examples determined as *Anisolabis maritima*, 1 ♀ is referable to genus *Gonolabidura* Zacher and other 2 nymph to *Forcipula* Bolivar. In the absence of male it is not possible to place them upto specific level. The type of *Labia nigrella* (now *Marava nigrella*) is in poor condition, lacking hind portion of body. It is figured here for the first time and some additional characters are provided. *Forficula pulchripes* so far known by its Type ♀, is transferred to the genus *Kosmetor* Burr on account of general facies and the shape of antennal segments. The material determined as *Opisthocosmia armata* belongs to *Eutimomena paradoxo* Bey-Bienko and is reported for the first time from Burma.

Family CARCINOPHORIDAE

Subfamily TITANOLABINAE NOV.

Size medium to large; build stout. Head generally globose. Eyes shorter than post-ocular length. Apterous or elytra present as narrow ovate flaps on mesonotum laterally. Prosternum longer than broad, gently constricted at apical third; mesosternum longer, than broad, sides moderately and hind margin strongly rounded; metasternum longer than broad, comparatively broader at base but projecting as tongue shaped lobe beyond hind coxae with hind margin rounded. Legs stout,

femora swollen, tibia and tarsi compressed. Penultimate sternite broadly rounded posteriorly. Ultimate tergite about as long as broad and forceps stout, simple and straight, gently hooked at apices. All these last three structures almost alike in both sexes.

Type genus: *Titanolabis* Burr, 1910 (= *Homoeolabis* Borelli, 1911 syn. nov.).

This subfamily is erected to include those species which were formerly placed under the subfamily Carcinophorinae and possessed mesosternum more or less oval in shape and metasternum longer than broad, produced as tongue shaped lobe beyond hindcoxae with posterior margin rounded. Since sternal plates are believed to provide characters of supergeneric importance, the erection of this subfamily seems to be fully justified.

Hitherto, species with above sternal plates were placed under two separate genera, i.e., *Titanolabis* Burr (1910) and *Homoeolabis* Borelli (1911) and contained one species each from New Guinea and South India, respectively. BURR (1911a) separated both these genera by the absence and presence of abbreviated elytra in the form of narrow ovate lobes on mesonotum. At present these characters are not considered of any taxonomic value for the separation of different genera. Moreover, STEINMANN (1979), who designated Lectotype of *Titanolabis colossea* (Dohrn, 1864) has described the male genitalia besides giving other morphological details. Since male parameres in both these genera are narrow, being one, third to one fourth of proparameres in length, it is proposed to sink *Homoeolabis* under *Titanolabis*.

During the course of present study 2 ♂♂ from Burma, referred to *A. colossea* Dohrn by BORMANS (1894) were recognised as representing an undescribed species. The male parameres are comparatively broader and only slightly shorter than the proparameres. In the light of this it is proposed to erect a new genus also for the reception of this new species.

Genus **Paratitanolabis** nov.

Male parameres almost parallel sided, tip rounded, four and half times longer than broad, only slightly shorter than proparameres; distal lobes with a fine tubular virga; median incision of proparameres extending along its whole length.

Type species: *P. bormansi* nov.

KEY TO THE GENERA AND SPECIES OF TITANOLABINAE

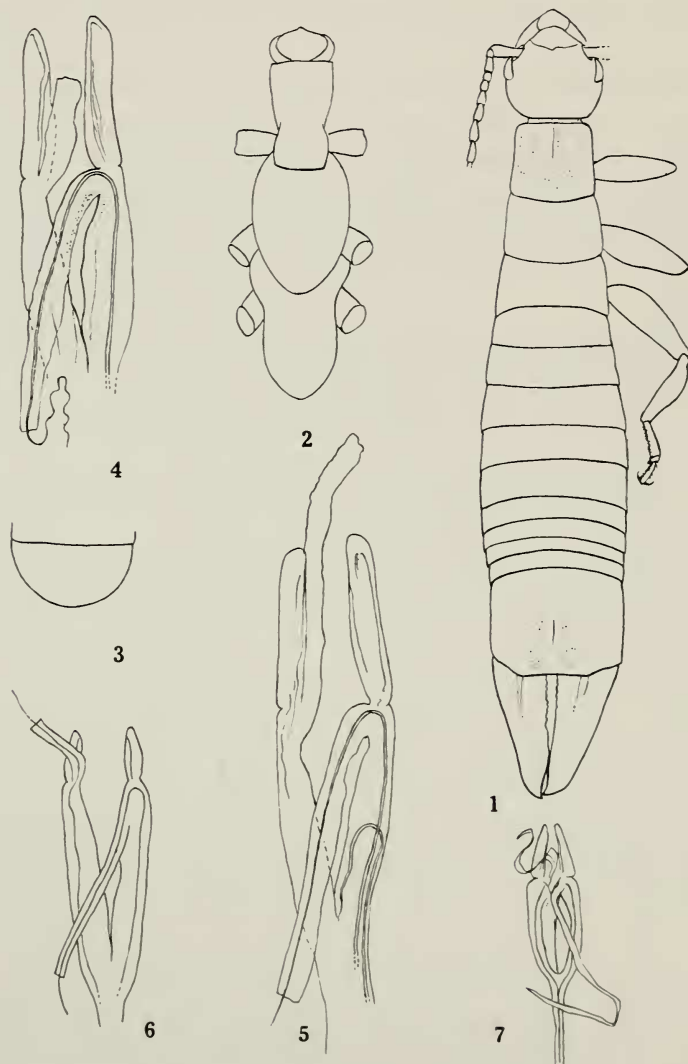
- 1 (4). Male parameres short and narrower, about one fourth to one third as long as proparameres *Titanolabis* Burr
- 2 (3). Size larger (31 to 36 mm, including forceps), apterous, abdominal tergites smooth; parameres in males gently widened in middle; median incision of proparameres extending upto basal three fourth of the length *T. colossea* (Dohrn)
- 3 (2). Size comparatively smaller (18 to 24 mm, including forceps); elytra abbreviated as lateral ovate lobes on mesonotum; abdominal tergites above punctulate; parameres in males gradually narrowing from base to apex; median incision of proparameres extending in apical half to one third only *T. maindroni* (Borelli) comb. nov.
- 4 (1). Male parameres comparatively broader and longer, only slightly shorter than proparameres in length
 *Paratitanolabis bormansi* gen. et sp. nov.

Paratitanolabis bormansi sp. nov. (Figs. 1-5)

♂: General colour brownish black; mouth parts, antennae and legs yellowish brown, some of the middle abdominal tergites reddish but blackish on sides; forceps reddish black. Whole body pilose, smooth and shining.

Head about as long as broad, globose, frons conspicuously raised, hind angles together with margin forming an arch, sutures fine but distinct. Eyes small, about as long as the post-ocular length. Antennal segments stout (in the holotype ♂ partly broken, on the right side only 9 and on the left 4 segments remaining), 1st stout, about as long as the distance between scapi and narrowed basally; 2nd small, about as long as broad; 3rd long and slender, a trifle expanded apically; 4th subclavate; 5th ovate, longer than the preceding, 6th onwards segments gradually increasing in length and each gently expanded apically. Pronotum slightly longer than broad, gently expanded posteriorly, all margins almost straight, median sulcus distinct, prozona moderately convex and well differentiated from flat metazona. Mesonotum weakly transverse, posteriorly subtruncate and metanotum transverse, hind margin emarginate. Legs with femora swollen especially fore-femora; tibiae compressed, foretibia sulcate in apical half, middle one in slightly

less than apical half and hind one in apical one third only; hind metatarsus longer than the combined length of pro- and mesotarsus; apical part of tibia and underside of tarsi clad with golden yellow hairs. Sternal



Figs. 1-7: *Paratitanolabis bormansi* sp. nov., Holotype ♂; 1. Dorsal view (legs and antennae of only one side shown), 2. Sternal plates, 3. Penultimate sternite, 4. Genitalia; Paratype ♂; 5. Genitalia; *Titanolabis colossea* (Dohrn) ♂, 6. Genitalia (re-drawn from Steinmann, 1979); *Titanolabis maindroni* (Borelli) ♂; 7. Genitalia.

plates same as in *T. maindroni* (Borelli) with meso- and metasternum rounded and lobed posteriorly. Elytra and wings wanting. Abdomen smooth, gradually expanding posteriorly, convex, sides of segments rounded, ecarinate, sparsely punctate. Penultimate sternite broadly rounded posteriorly. Ultimate tergite quadrate, gently sloping posteriorly, weakly raised and striate above the bases of forceps and faintly depressed in middle, median sulcus distinct in middle, hind margin thickened, straight in middle, laterally oblique and emarginate. Forceps contiguous, straight, tapering apically with apices gently hooked and meeting, branches cylindrical in basal half, afterwards depressed, inner margin finely crenulate. Pygidium short, narrow, vertical, tip pointed. Genitalia (figs 4 & 5) with parameres about four and half times longer than broad and virga distinct.

♀: Unknown.

Measurements (in mm)	Holotype ♂	Paratype ♂
Length of head	2.4	3.0
Width of head	2.1	2.7
Length of pronotum	1.7	2.3
Width of pronotum	1.75	2.2
Length of body	14.2	20.4
Length of forceps	2.65	3.2

Material examined. Holotype ♂: labelled as (i) Carin Chebà, 900-1100 m, L. Fea, V. 88; (ii) *Anisolabis colossea* Dohrn ♂ - handwritten label by BORMANS; (iii) Museo Civico di Genova. Paratype ♂: labelled as (i) Carin Chebà, 900-1100 m, L. Fea, XII.88; (ii) *Anisolabis colossea* Var. - handwritten, not by BORMANS; genitalia mounted between two coverslips and pinned with respective specimens; deposited in Museo Civico di Storia Naturale « Giacomo Doria », Genova, Italy.

Family LABIDURIDAE

Subfamily ALLOSTETHINAE

Gonolabidura sp.

Material examined. Birmania: Catcin Cauri, 1 ♀, Aug.-Nov., 1886, L. Fea (Det. by BORMANS as *Anisolabis maritima* (Bonelli)).

Remarks. In the absence of a male its specific identification is not possible but the generic assignment seems to be certain in having characteristic mesosternum and antennae.

Forcipula sp.

Material examined. Burma, Tenasserim, Mt. Mooleyit, 1000-1300 m, 2 nymphs, Apr. 1887, L. Fea (Det. by BORMANS as *Anisolabis maritima* (Bonelli)).

Family LABIIDAE

Subfamily SPONGIPHORINAE

Marava nigrella (Dubrony) (Fig. 8)

Labia nigrella, 1879, Ann. Mus. Civ. St. Nat. Genova, 14: 370 (1 ♂: Tcibodas (Java) Beccari).

Prolabia nigrella (Dubrony): Burr, 1911, Deutsche ent. Nat. Bibl.: 60.

Material examined. Type ♂, labelled as: (i) Giava (= Java) Tcibodas, Ott. 1874, O. Beccari; (ii) TYPUS - printed in red; (iii) *Labia nigrella* Dubrony - handwritten by BORMANS; (iv) *nigrella* Dubr. handwritten but not by BORMANS and (v) Museo Civico di Genova. The specimen is pasted on a card; all antennal segments except right basal and last four abdominal segments and forceps missing.

Remarks. In the absence of antennal segments it is not possible to ascertain its inclusion in the genus *Marava* Burr (= *Prolabia* Burr). However, as per DUBRONY'S (1879) statement that antennal segments 4 to 6 are conical it may be inferred that BURR (1911) was right in relegating it to this genus. Following are some additional characters: head with microreticulations, slightly longer than broad, slightly narrowing posteriorly, convex, sutures obsolete. Eyes about half as long as the post-ocular length. Basal antennal segment gently expanded apically, shorter than the distance between scapi. Pronotum about as long as broad, sides hardly reflexed and almost straight, gently widened posteriorly, hind angles and margin broadly rounded. Legs with fore femora strongly and middle and hind ones moderately swollen, hind metatarsus 4 times longer than broad, ventrally clad with a row of tick hairs along with fine pubescence; mesotarsus short; protarsus long and slender but shorter than the metatarsus; claw without arolium.

Measurements (in min)

	Type ♂
Length of head	0.9
Width of head	0.8
Length of 1st antennal segment	0.25
Distance between scapi	0.4
Length of pronotum	0.6
Width of pronotum	0.65
Length of elytra	1.1
Length of wings	1.0

Family FORFICULIDAE

Subfamily OPISTHOSMIINAE

Eutimomena paradoxa Bey-Bienko (Figs. 9-11)

Opisthocosmia armata: Bormans (nec Haan), 1894, Ann. Mus. St. Nat. Genova, (2) 14: 394.

Eutimomena paradoxa Bey-Bienko, 1970, Zool. Zhur., 49 (12): 1819, figs. 8, 9 (♂, North Vietnam, Bakthai Province: Tamdao).

Material examined. Birmania, Metanjá, 1 ♂, Aug. 1885; Carin Chebá, 900-1100 m, 1 ♀, V-XII.88 (L. Fea) - Det. by BORMANS as *Opisthocosmia armata* Haan.

Remarks. In having the basal antennal segment dorsally depressed with sides somewhat raised and convex ventrally and other morphological similarities, both the specimens are referable to this species.

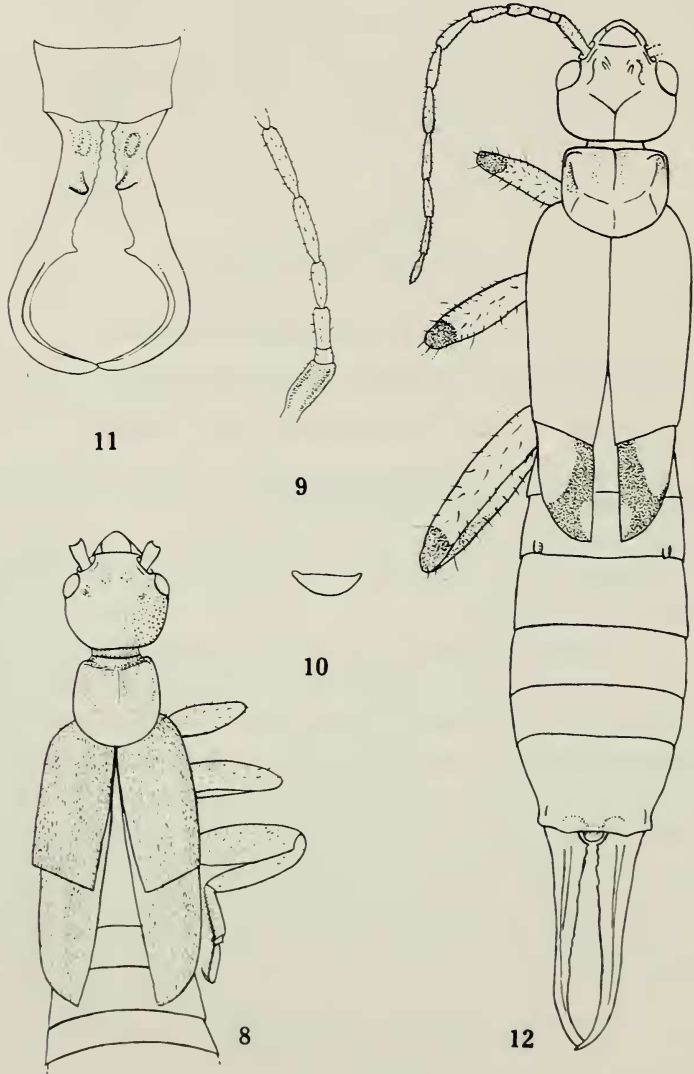
Cordax armatus (Haan) agrees in most characters with this species except 1st antennal segment. According to BOESEMANN (1954), BORMANS has examined the type of the former but he makes no mention of trigonal basal antennal segment in any of his papers (1894 and 1900). Therefore it will be necessary to check this point with type of *C. armatus* and in case it possesses identical basal antennal segment, *Eutimomena paradoxa* will fall as synonym.

Subfamily EUDHRININAE

Kosmetor pulchripes (Bormans) comb. nov. (Fig. 12)

Forficula ? *pulchripes* Bormans 1894, Ann. Mus. Civ. St. Nat. Genova, (2) 14: 408 (1 ♀; Burma)

Material examined. Type ♀ labelled as (i) Carin Chebá, 900-1100 m, L. Fea, V-XII.88; (ii) Typus - in red letters; (iii) *Forficula pulchripes* ♀ sp. nova - in BORMANS hand; (iv) Genere incerto *Forficula*



Figs. 8-12: *Marava nigrella* (Dubrony) Type ♂, 8. Anterior portion of body; *Eutimomena paradoxa* Bey-Bienko ♂, 9. A few basal antennal segments, 10. Cross - section of basal antennal segment, 11. Ultimate tergite and forceps; *Kosmetor pulchripes* (Bormans) comb. nov., Type ♀, 12. Dorsal view (legs and antennae of only one side shown).

or *Sphingolabis* - handwritten but not by BORMANS; (v) *pulchripes* Borm. - handwritten and (vi) Museo Civico di Genova.

Remarks. BORMANS' (1894) original description of the species though being quite adequate, some additional characters are given below:

Head about as long as broad, weakly convex, sutures fine but distinct, hind margin emarginate; eyes prominent but shorter than post-ocular length; antennae 12-segmented, 1st segment, long, stout, narrowed basally, shorter than the distance between scapi; 2nd small about as long as broad; 3rd long and slender; 4th stouter, gently expanded apically, about as long as the 3rd; 5th onwards segments gradually increasing in length, each gently expanded apically except last one slightly shorter than preceding and thinner. Pronotum, a trifle broader than long, sides straight, gently reflexed, hind margin and angles broadly rounded, median sulcus distinct, prozona raised, well differentiated from flat metazona. Legs normal, yellow, knee joints and apical one fourth of femora and basal half of hind tibiae black or brownish black. Elytra and wings well developed, smooth. Abdomen with shallow and coalescent punctulations.

Measurement (in mm)

	Type ♀
Length of head	1.5
Width of head	1.5
Length of pronotum	1.2
Width of pronotum	1.3
Length of elytra	2.9
Length of wing	1.4
Length of body	10.1
Length of forceps	1.7

Remarks. This species is transferred to the genus *Kosmetor* Burr, owing to its great resemblance with members of this genus and in having various antennal segments stout, except 3rd one which is cylindrical and almost equal to fourth in length. Amongst the Oriental species of this genus it comes very close to *K. annandalei* Burr (1904) from Thailand, known by Type ♂ only, in having legs yellow with femora black in apical third and hind tibia in basal half, and other morphological details. But it would be advisable to treat both as valid pending the

collection of both sexes together because often females of closely related species are alike in most of the details.

It would be worthwhile to mention here that members of the genera *Timomenus* Burr (Opisthocosmiinae) and *Kosmetor* Burr (Eudohrninae) show close resemblance but they can be easily separated by the shape of antennal segments, especially a few basal ones. In case of former all segments are long and slender whereas in the latter, excepting 3rd, other segments are comparatively stouter, gently expanded apically. It has been observed that 3rd and 4th antennal segments in both the genera are generally almost equal but sometimes 4th may be a little longer in the *Timomenus* Burr. Therefore it would be advisable to place more reliance on the shape of antennal segment rather than the comparative length in separating both these genera.

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SUMMARY

The present study is based on some material from Burma, determined by Bormans, which contains types of two species. *Paratitanolabis bormansi* gen. et sp. nov. is described. A new subfamily Titanolabinae is erected for its reception with *Titanolabis* Burr as the type genus. The genus *Homoeolabis* Borelli (1911) is treated as synonym of *Titanolabis* Burr (1910). Types of *Labia nigrella* and *Forficula pulchripes* are figured for the first time besides providing some additional characters. The latter species is transferred under the genus *Kosmetor* Burr.

RIASSUNTO

Sono ristudiati alcuni materiali di Birmania contenenti anche i tipi di due specie, già determinati da Bormans. Viene descritto *Paratitanolabis bormansi* n. gen. e n. sp. È stabilita la nuova sottofamiglia Titanolabinae al fine di accogliere *Titanolabis* Burr che ne costituisce il tipo. Il gen. *Homoeolabis* Borelli è posto in sinonimia di *Titanolabis* Burr.

Si forniscono per la prima volta illustrazioni e caratteri aggiuntivi alle descrizioni di *Labia nigrella* e *Forficula pulchripes*. Quest'ultima specie è trasferita nel gen. *Kosmetor* Burr.
